

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-2 and 4-8 are presently active in this case. The present Amendment amends Claims 1, 2, 4, and 6-8 without introducing any new matter and cancels Claim 3 without prejudice or disclaimer.

The outstanding Office Action rejected Claims 1-6 and 8 under 35 U.S.C. §102(b) as anticipated by Morita (U.S. Patent No. 5,543,688). Claims 1 and 3 were rejected under 35 U.S.C. §102(b) as anticipated by Maher, Jr. et al. (U.S. Patent No. 4,381,965; herein "Maher"). Claim 7 was rejected under 35 U.S.C. §103(a) as unpatentable over Morita in view of Buchberger, Jr. et al. (U.S. Patent Publication No. 2005/0178748; herein "Buchberger").

Claim 1 is amended to recite "by charging a plate-like electrode, facing an earth electrode" for clarification purposes. This feature finds non-limiting support in the disclosure as originally filed, for example at page 2, lines 3-6 and in corresponding Figure 4. Therefore, the changes to the claims are not believed to raise a question of new matter.¹ In addition, Claim 1 is amended to recite all the features of dependent Claim 3, and to correct minor formalities. Consequently, Claim 3 is cancelled. Furthermore, Claims 2, 4, and 6-8 are amended to correct minor informalities and to delete the improper multiple claim dependencies. Since these changes are merely formal in nature, they are not believed to raise an issue on new matter.

In light of the amendments to independent Claim 1, Applicants respectfully request reconsideration of the rejections of Claims 1-8 under 35 U.S.C. §§102(b) and 103(a), and

¹ See MPEP 2163.06 stating that "information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter."

traverse the rejections, as discussed next.

Briefly recapitulating, Claim 1 relates to a radio frequency power supply structure for use in a device generating plasma by charging a plate-like electrode, facing an earth electrode, with a radio frequency power, the radio frequency power supply structure supplying the plate-like electrode with the radio frequency power from an RF cable, wherein said RF cable is positioned on an extended plane of a plane formed by the plate-like electrode to connect to the plate-like electrode at a connecting portion provided between a core cable of the RF cable and the plate-like electrode, on an end peripheral portion of the plate-like electrode, wherein the plate-like electrode *forms a longitudinal grid plate shape facing the earth electrode* having two lateral electrodes forming two mutually opposed end peripheral portions of the plate-like electrode, and a plurality of longitudinal electrodes arranged between the two lateral electrodes so as to connect to the two lateral electrodes.

As explained in Applicants' specification from page 6, line 17, to page 7, line 1, with corresponding Figure 1, Claim 1 improves upon background radio-frequency power supply structures because a reflection of the radio frequency power at a connecting portion of the electrode, to which an RF cable is connected, is reduced, and an incidence of the radio frequency power into the electrode can be increased.

Turning now to the applied references, Morita describes a plasma generator having two groups of interleaved electrodes, if one group having odd-numbered plates and another group having even number plates.² However, Morita fails to teach or suggest that the plate-like electrode forms a longitudinal grid plate shape facing said earth electrode having two lateral electrodes forming two mutually opposed end peripheral portions of said electrode, as recited in amended, independent Claim 1. As shown in Morita's Figures 2A and 2B, Morita's electrodes 53 and 53' are plates and therefore these electrodes have not a

² See Morita in the Abstract, and in Figure 1.

longitudinal grid plate shape, as recited in independent Claim 1. In addition, Morita clearly fails to teach or suggest that a plurality of longitudinal electrodes are arranged between the two lateral electrodes so as to connect to the two lateral electrodes, as further recited in Claim 1. Morita merely teaches a plurality of planar electrodes 53 that are arranged in parallel.³

Applicants also respectfully submit that the reference Morita fails to teach or suggest features of Applicants' dependent claims, as next discussed.

Regarding dependent Claim 4, Claim 4 recites that the RF cable is directed in parallel with the plurality of longitudinal electrodes to connect to the plate-like electrode at the connecting portion. Nowhere such feature is taught or suggested in Morita. Morita's Figure 1 merely shows the feeding of the flat electrode plates from a source 58.

Regarding dependent Claim 5, Morita also fails to teach or suggest that the RF cable directly connects to one of the plurality of longitudinal electrodes at the connecting portion. Since Morita fails to teach or suggest the longitudinal electrodes, as explained above, Morita also fails to teach or suggest that an RF cable directly connects to one of the plurality of longitudinal electrodes.

In addition, regarding dependent Claim 6, Morita fails to teach or suggest the core cable of the RF cable connects to the plate-like electrode so as to form a smoothly curved continuous surface at the connecting portion. In Figures 1, 2A and 2B of Morita it can be seen that the connection of the electrodes by an RF cable to the source 58 is not forming a continuous surface.

Therefore, Morita fails to teach or suggest every feature recited in Applicants' claims, so that Claims 1, 2, and 4-8 are believed to be patentably distinct over Morita. Accordingly,

³ See Morita in Figures 2A-2B, and at column 4, lines 3-24.

Applicants respectfully traverse, and requests reconsideration of, the rejection based on Morita.⁴

Regarding the rejection of Claims 1 and 3 under 35 U.S.C. §102(b) over Maher, Applicants respectfully traverse the rejection and request reconsideration of the rejection, as next discussed.

The reference Maher fails to remedy the deficiencies of Morita, as discussed above. Maher is directed to a gas plasma reactor with a compact, vertically stacked array of electrodes.⁵ Maher shows in Figure 1-2 a stacked-electrode subassembly with the electrode units 22 and 23, and explains that a plasma discharge region 13d is arranged between the units 22 and 23.⁶ Maher further explains that "the electrode units 19-25 are maintained securely in horizontal parallel relationship, one above the other, by uprights 34-37 of insulating material into which the electrode units are recessed."⁷ Accordingly, Maher also fails to teach or suggest that the plate-like electrode forms a *longitudinal grid plate shape facing the earth electrode* having two lateral electrodes forming two mutually opposed end peripheral portions of the plate-like electrode, as recited in Applicants' Claim 1. Nowhere the longitudinal grid plate shape can be found in Maher, and also there is no electrode that faces the earth electrode in Maher.

Regarding the reference Buchberger, used in the context of an obviousness-type rejection of Claim 7 under 35 U.S.C. §103(a), Applicants respectfully submit that Buchberger fails to remedy the deficiencies of Maher and/or Morita, as next discussed.

⁴ See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

⁵ See Maher in the Abstract, and at column 2, lines 35-37.

⁶ See Maher at column 5, lines 24-27.

⁷ See Maher at column 5, lines 42-56.

Buchberger describes an overhead gas distribution electrode, forming at least a portion of the ceiling of a plasma reactor, and facing a processing zone in the reactor.⁸ However, Buchberger fails to teach or suggest that the plate-like electrode forms a longitudinal grid plate shape facing the earth electrode, having two lateral electrodes forming two mutually opposed end peripheral portions of the plate-like electrode, as recited in independent Claim 1, and also fails to teach or suggest that a plurality of longitudinal electrodes arranged between the two lateral electrodes so as to connect to the two lateral electrodes, as further recited in Claim 1. As shown in Buchberger's Figures 8 and 9, the overhead electrode 125 has to form of a gas injection showerhead,⁹ and therefore at least fails to teach or suggest the plate-like electrode forms a longitudinal grid plate shape facing the earth electrode, having two lateral electrodes forming two mutually opposed end peripheral portions of the plate-like electrode, as recited in amended, independent Claim 1.

Therefore, even if the combination of Maher and Buchberger is assumed to be proper, the combination fails to teach every element of the claimed invention. Specifically, the combination fails to teach the claimed plate-like electrode form. Accordingly, Applicants respectfully traverse, and request reconsideration of, this rejection based on these patents.¹⁰

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-2 and 4-8 is earnestly solicited.

⁸ See Buchberger in the Abstract.

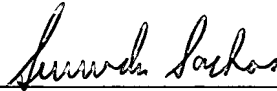
⁹ See Buchberger at page 11, paragraph [0122].

¹⁰ See MPEP 2142 stating, as one of the three "basic criteria [that] must be met" in order to establish a *prima facie* case of obviousness, that "the prior art reference (or references when combined) must teach or suggest all the claim limitations," (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representative at the below listed telephone number.

Respectfully submitted,

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